

REMARKS

This is a full and timely response to the non-final Office Action mailed on December 28, 2005 (Paper No./Date 12192005). Reconsideration and allowance of the application and presently pending claims are respectfully requested in view of the foregoing remarks. Claims 1-44 are pending and claims 1, 7, 12, 13, 14, 22, 27, 28, 29, 35, 40, 41 and 42 are amended. Applicants should not be presumed to agree with any statements made regarding the rejections and objections made in the Office Action unless otherwise specifically indicated by the Applicants.

I. Indication of Allowable Subject Matter

Applicants greatly appreciate the Examiner's statement in the previous Office Action in which claims 12, 13, 27, 28, 40 and 41 have been indicated as having allowable subject matter. Applicants have amended claims 12, 13, 27, 28, 40 and 41 to include the limitations of the base claim and any intervening claims, as indicated in the Office Action. Therefore, these claims are in condition for allowance.

II. Rejections under 35 U.S.C. § 112

Applicants have amended claims 1, 14, 29, and 42 to overcome the rejection. Applicants respectfully request that the rejection be withdrawn.

III. Response to Claim Rejections Under 35 U.S.C. §103

Claims 1-5, 7-11, 14-20, 22-26, 29-33, and 35-39 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,185,780 to *Leggett* in view of U.S. Patent No. 6,823,315 to *Bucci*. Applicants respectfully traverse this rejection on the grounds that *Leggett* in view of *Bucci* fails to disclose, teach or suggest each and every element of claims 1-5, 7-11, 14-20, 22-26, 29-33 and 35-39.

Claims 6, 21 and 34 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Leggett* in view of *Bucci* and further in view of *Leamon*. Applicants respectfully traverse this rejection on the grounds that *Leggett* in view of *Bucci* and further in view of *Leamon* fails to disclose, teach or suggest each and every element of claims 6, 21 and 34.

Claims 42-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Blue Pumpkin's Prime Time Call Center software product (*Blue Pumpkin*). Applicants respectfully traverse this rejection.

In order for a claim to be properly rejected under 35 U.S.C. §103, the teachings of the prior art reference must suggest all steps/elements/features of the claimed invention to one of ordinary skill in the art. *See, e.g., In re Dow Chemical*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

A. Claims 1, 14 and 29

Claim 1, as amended, recites:

A computer-implemented method for generating a schedule for a plurality of employees in a call center environment, the method comprising:

receiving a plurality of user inputs to a scheduling program, including a number of employee designations each of which refers to a unique employee, and a number of skill sets each of which corresponds to one of the employee designations;

determining an effect on the schedule of an incremental change to the plurality of user inputs, including:

receiving a user input that changes the number of employee designations by indicating at least one changed employee;

estimating an effect of the at least one changed employee on effective staffing levels for each of various tasks, wherein the estimating uses as an input a skill set associated with the at least one changed employee; and

generating estimated effective staffing levels for each of the various tasks; and

generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

(Emphasis Added)

Claim 14, as amended, recites:

A system for generating a schedule for a plurality of employees in a call center, the system comprising:
at least one server comprising at least one storage device;
and
at least one client processor coupled to the server through a network, wherein the client processor is coupled to a plurality of storage devices, including a storage device that stores instructions that, when executed, cause the at least one client processor to,
receive a plurality of user inputs to a scheduling program, including a number of employee designations each of which refers to a unique employee, and a number of skill sets each of which corresponds to one of the employee designations;
determine an effect on the schedule of an incremental change to the plurality of user inputs, including:
receive a user input that changes the number of employee designations by indicating at least one changed employee;
estimate an effect of the at least one changed employee on effective staffing levels for each of various tasks, including estimating using as an input a skill set associated with the at least one changed employee; and
generate estimated effective staffing levels for each of the various tasks; and
generate the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

(Emphasis Added)

Claim 29, as amended, recites:

An electromagnetic medium containing executable instructions which, when executed in a processing system, cause the system to generate a schedule in a call center environment, wherein generating the schedule comprises:

receiving a plurality of user inputs to a scheduling program, including a number of employee designations each of which refers to a unique employee, and a number of skill sets each of which corresponds to one of the employee designations;

determining an effect on the schedule of an incremental change to the plurality of user inputs, including:

receiving a user input that changes the number of employee designations by indicating at least one changed employee;

estimating an effect of the at least one changed employee on effective staffing levels for each of various tasks, wherein the estimating uses as an input a skill set associated with the at least one changed employee; and

generating estimated effective staffing levels for each of the various tasks; and

generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

(Emphasis Added)

- i. Leggett fails to disclose, teach or suggest the feature of generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period, as recited in claims 1, 14 and 29

Applicants respectfully submit that *Leggett* describes a method for predicting a number of agents required to provide a given service level in a force management system. The force management system is described as having the capability to generate call handling performance data including average call arrival rate and average handling time per call. The described method calculates an offered load equal to the average arrival rate of calls for the system multiplied by the average handling time per call. The calculated offered load is used to calculate two predictor values which are used in successive Erlang C calculations to locate the number of agents required to provide a given service level.

Leggett does not teach or suggest generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

- ii. Bucci fails to disclose, teach or suggest the feature of generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period, as recited in claims 1, 14 and 29

Applicants respectfully submit that *Bucci* does not compensate for the deficient teachings of *Leggett*. In this regard, *Bucci* describes a dynamic workforce scheduler that uses a simulated annealing function while considering employee preferences such as preferred hours, preferred jobs, etc., as well as employee job skills. The schedule must comply with certain constraints, such as hours rules, minor rules, break rules, *etc.* The described method for generating a schedule takes into account preexisting rules and constraints. The method includes a simulated annealing process that includes determining whether a current schedule iteration is better than a previous schedule iteration in an attempt to find a best schedule.

Bucci does not teach or suggest a computer-implemented method of generating a schedule, as recited in amended claims 1, 14 and 29. In particular, *Bucci* does not teach or suggest generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

- iii. The combination of *Leggett* and *Bucci* fails to disclose, teach, or suggest each and every element of claims 1, 14 and 29

Because *Leggett* and *Bucci* fail to disclose, teach, or suggest the above-emphasized features of claims 1, 14 and 29, Applicants respectfully submit that the combination of *Leggett* and *Bucci* also fails to disclose, teach, or suggest each and every element of claims 1, 14 and 29. Thus, a *prima facie* case of obviousness is not established based on *Leggett* and *Bucci*. Consequently, for at least this reason, among others, Applicants respectfully request that the rejection be withdrawn and claims 1, 14 and 29 be allowed.

B. Dependent Claims 2-11, 15-26, and 30-39

Because independent claims 1, 14, and 29 are allowable over the cited art of record, dependent claims 2-11, 15-26, and 30-39 are allowable as a matter of law for at least the reason that dependent claims 2-11, 15-26, and 30-39 contain all features and elements of their

respective independent base claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988). Accordingly, the rejection to dependent claims 2-11, 15-26, and 30-39 should be withdrawn for at least this reason, among others.

C. Claim 42

Claim 42, as amended, recites:

A computer-implemented method for generating a schedule in a call center environment, the method comprising:

initiating an automatic scheduling process that receives employee data including skill sets as an input;

determining whether to simulate a proposed schedule, including measuring a cumulative error of using an estimation function from results of the simulation, and a predetermined allowed error;

if it is determined not to simulate the proposed schedule, continuing with the method including evaluating and outputting the proposed schedule;

determining whether a change has been made to the employee data;

if a change has been made to the employee data, calculating an effective change to staffing levels, wherein the calculating includes estimating an effect of at least one changed employee on the effective change to staffing levels for a number of various tasks, wherein the estimating uses as an input a skill set associated with the at least one changed employee;

continuing with the method including evaluating and outputting the proposed schedule; and

generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period.

(Emphasis Added)

- i. References *U1* and *V1* fail to disclose, teach or suggest the feature of “generating the schedule for the plurality of employees in the call center environment with varying skill sets for a time period, wherein each time period includes a plurality of queues associated with corresponding tasks, wherein the plurality of employees have varying overlapping skill sets that enable them to perform the various tasks in the plurality of queues within the time period, hence, the employees are shared across tasks in the plurality of queues within the time period,” as recited in claim 42

Applicants respectfully submit that amended claim 42 is not rendered obvious by the combined teachings of references *U1* and *V1*. Reference *U1* is a review of Blue Pumpkin’s PrimeTime Enterprise workforce management software. Reference *U1* comments on a skills-based scheduling add-on that can be used to link agent skills to automated call distributor (ACD) queues so the appropriate agent can take calls on a specific subject. Reference *V1* describes how Avis Rent A Car Inc. uses call center technology (Blue Pumpkin’s PrimeTime software) to handle staffing issues. However, no detail is given regarding the operational construct of the PrimeTime software. Thus, the references, alone or in combination, do not teach the above-emphasized limitation as recited in amended claim 42.

- ii. The combination of references *U1* and *V1* fails to disclose, teach, or suggest each and every element of claim 42

Because references *U1* and *V1* fail to disclose, teach, or suggest the above-emphasized features of claim 42, Applicants respectfully submit that the combination of references *U1* and *V1* also fails to disclose, teach, or suggest each and every element of claim 42. Thus, a *prima facie* case of obviousness is not established based on references *U1* and *V1*. Consequently, for at least this reason, among others, Applicants respectfully request that the rejection be withdrawn and claim 42 be allowed.

D. Dependent Claims 43 and 44


Because independent claim 42 is allowable over the cited art of record, dependent claims 43 and 44 are allowable as a matter of law for at least the reason that

dependent claims 43 and 44 contain all features and elements recited in claim 42. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988). Accordingly, the rejection to dependent claims 43 and 44 should be withdrawn for at least this reason, among others.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the now pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned agent at (770) 933-9500.

Respectfully submitted,


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